AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. **(Currently Amended)** A temperature compensation system for a laser, the temperature compensation system comprising:

a laser driver having a first potentiometer and a second potentiometer, the laser driver configured to provide a first signal to a laser based on a resistance value of the first potentiometer;

an optical communication analyzer configured to provide a second signal indicative of a first output parameter of the laser; ~~and~~

the laser driver configured to provide a third signal to the laser based on a resistance value of the second potentiometer;

the optical communication analyzer configured to provide a fourth signal indicative of a second output parameter of the laser; and

a computer system configured to drive the first signal and receive the second signal and determine a first updated resistance value for the first potentiometer to obtain a first desired laser output parameter value based on a first known resistance value of the first potentiometer, the second signal, and the first desired laser output parameter value and to drive the third signal and receive the fourth signal and determine a second updated resistance value for the second potentiometer to obtain a second desired laser output parameter value based on a second known resistance value of the second potentiometer, the fourth signal, and the second desired laser output parameter value.

2. **Cancelled**

3. **(Currently Amended)** The temperature compensation system of claim [[2]] 1, wherein the first signal comprises a bias current signal and the third signal comprises a modulation current signal.

4. **(Currently Amended)** The temperature compensation system of claim [[2]] 1, wherein the first output parameter of the laser comprises an average power and the second output parameter of the laser comprises an extinction ratio.

5. **(Currently Amended)** The temperature compensation system of claim [[2]] 1, wherein the first desired laser output parameter comprises an average power and the second desired laser output parameter comprises an extinction ratio.

6. **(Currently Amended)** A computer system comprising:

a memory storing a temperature compensation program; and

a processor, which executes the temperature compensation program instructions to:

select a first resistance setting for a first potentiometer for controlling a bias current of a laser diode;

receive a measurement of an average power of the laser diode; ~~and~~

calculate a second resistance setting for the first potentiometer based on the first resistance setting for the first potentiometer, the measurement of the average power, and a desired average power;

select a third resistance setting for a second potentiometer for controlling a modulation current of the laser diode;

receive a measurement of an extinction ratio of the laser diode; and

calculate a fourth resistance setting for the second potentiometer based on the third resistance setting for the second potentiometer, the measurement of the extinction ratio, and a desired extinction ratio.

7. **Cancelled**

8. **(Original)** The computer system of claim 6, wherein the processor executes the temperature compensation program instructions to set the temperature of the laser diode to a selected value.

9. **(Original)** The computer system of claim 6, wherein the processor executes the temperature compensation program instructions to store the second setting in the memory.

10. **(Currently Amended)** The computer system of claim [[7]] 6, wherein the processor executes the temperature compensation program instructions to store the fourth setting in the memory.

11. **(Currently Amended)** A method for compensating for temperature variations of a laser diode comprising:

selecting a first resistance setting for a first potentiometer for controlling a bias current of a laser diode;

measuring an average power of the laser diode; ~~and~~

calculating a second resistance setting for the first potentiometer based on the first resistance setting for the first potentiometer, the measured average power, and a desired average power;

selecting a third resistance setting for a second potentiometer for controlling a modulation current of the laser diode;

measuring an extinction ratio of the laser diode; and

calculating a fourth resistance setting for the second potentiometer based on the third resistance setting for the second potentiometer, the measured extinction ratio, and a desired extinction ratio.

12. **Cancelled**

13. **(Original)** The method of claim 11, further comprising:

setting the temperature of the laser diode to a selected value.

14. **(Currently Amended)** The method of claim [[12]] 11, wherein the first potentiometer is a first digital potentiometer and the second potentiometer is a second digital potentiometer.

15. **(Currently Amended)** The method of claim [[12]] 11, further comprising:

installing the laser diode in a transmitter; and

storing the second resistance setting for the first potentiometer and the fourth resistance setting for the second potentiometer to a memory of the transmitter.

16. **(Currently Amended)** The method of claim [[12]] 11, further comprising:

installing the laser diode in a transmitter;

selecting a first thermistor of the transmitter based on the second resistance setting for the first potentiometer; and

selecting a second thermistor of the transmitter based on the fourth resistance setting for the second potentiometer.

17. **(Currently Amended)** The method of claim [[12]] 11, wherein calculating the fourth resistance setting for the second potentiometer comprises the following equation:

$$R_2 = \left(\frac{10^{ERdB_2/10}+1}{10^{ERdB_2/10}-1}\right) \bullet \left(\frac{10^{ERdB_1/10}-1}{10^{ERdB_1/10}+1}\right) \bullet R_1$$

where

R_2 is the fourth resistance setting for the second potentiometer,

R_1 is the third resistance setting for the second potentiometer,

$ERdB_2$ is the desired extinction ratio in dB, and

$ERdB_1$ is the measured extinction ratio in dB.

18. **(Original)** The method of claim 11, wherein calculating the second resistance setting for the first potentiometer comprises the following equation:

$$R_2 = \frac{P_{1ave}}{P_{2ave}} \bullet R_1$$

where

R_2 is the second resistance setting for the first potentiometer,

R_1 is the first resistance setting for the first potentiometer,

P_{2ave} is the desired average power, and

P_{1ave} is the measured average power.

19. **(Currently Amended)** A computer readable medium for use in a computer system comprising:

a computer readable program code means for causing a computer to:

select a first resistance setting for a first potentiometer for controlling a bias current of a laser diode;

receive a measurement of an average power of the laser diode; ~~and~~

calculate a second resistance setting for the first potentiometer based on the first resistance setting for the first potentiometer, the measurement of the average power, and a desired average power;

select a third resistance setting for a second potentiometer for controlling a modulation current of the laser diode;

receive a measurement of an extinction ratio of the laser diode; and

calculate a fourth resistance setting for the second potentiometer based upon the third resistance setting for the second potentiometer, the measurement of the extinction ratio, and a desired extinction ratio.

20. **Cancelled**

21. **(Original)** The computer readable medium of claim 19, wherein the computer readable program code means comprises code means for causing a computer to:

set the temperature of the laser diode to a desired value.

22. **(Original)** A fiber optic transmitter comprising:

a laser;

a first potentiometer for controlling a bias current of the laser; and

a second potentiometer for controlling a modulation current of the laser,

wherein a first value of the first potentiometer is set for a specific temperature by:

selecting a second value for the first potentiometer;

measuring an average power of the laser; and

calculating the first value for the first potentiometer based on the second value for the first potentiometer, the measured average power, and a desired average power;

and wherein a third value of the second potentiometer is set for the specific temperature by:

selecting a fourth value for the second potentiometer;

measuring an extinction ratio of the laser; and

calculating the third value for the second potentiometer based on the fourth value for the second potentiometer, the measured extinction ratio, and a desired extinction ratio.

23. **(Original)** The fiber optic transmitter of claim 22, wherein the first potentiometer is a first mechanical potentiometer and the second potentiometer is a second mechanical potentiometer.

24. **(Original)** The fiber optic transmitter of claim 22, wherein the first potentiometer is a first digital potentiometer and the second potentiometer is a second digital potentiometer.

25. **(Original)** The fiber optic transmitter of claim 24, wherein a first position of the first digital potentiometer is stored in a memory of a transmitter and a second position of the second digital potentiometer is stored in the memory of the transmitter.

26. **(Original)** The fiber optic transmitter of claim 22, wherein the first value of the first potentiometer is stored in a memory of a transmitter and the third value of the second potentiometer is stored in the memory of the transmitter.

27. **(Original)** The fiber optic transmitter of claim 26, wherein the memory is an electrically erasable programmable read-only memory.

28. **(Original)** The fiber optic transmitter of claim 22, wherein the laser is a laser diode.